

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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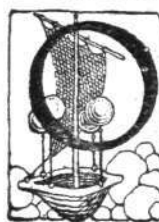
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EDITORIAL COMMENT.



R.A.F. in Irak

CTOBER 1, 1922, will go down in history as the first date on which an air force has ever been in supreme command over other forces in their duties of policing a province or district. To Air Vice-Marshal Sir John Salmond falls the honour of being the first Air Force officer to be placed above the officers in command of units of the other fighting arms. When it was first announced, nearly a year ago, that the Government's policy in Mesopotamia was to be based upon maintenance of peace by the R.A.F., instead of by Army units, we received the announcement with satisfaction, because we believed that in this way the work of policing a country of such a nature could be more efficiently and expeditiously done by the new arm. Since then we have had no occasion to change our views, and we therefore again express our satisfaction with the decision to hand over Irak to the R.A.F., in the firm conviction that this service will worthily carry out the task imposed upon it, a task which will be by no means an easy one, and which will demand from every one—from Sir John Salmond downwards—the best of which he is capable. Let the R.A.F., Irak, remember that the eyes of the country—the eyes of the world, for that matter—will be focussed upon Irak during the coming months, and that by the results obtained the question will be largely decided of whether or not in the future such duties shall devolve in increasing degree upon the R.A.F. We have no hesitation in saying that in Air Vice-Marshal Sir John Salmond (who will probably take over as Air Marshal) the R.A.F., Irak, has probably the best chief it would be possible to find, and if all officers and men under him give of their best and remain loyal to their chief, we have not the slightest doubt that all will be well.

At the same time, we think it our duty to offer a word of warning. There have been very strong criticisms of the way in which the R.A.F. in India have been wasted, and, from some uninformed quarters, such shortcomings as have been manifest have been used in proof of the unsuitability of an

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

1922.

- Sept. Tyrrenian Cup, Italy
- Sept. Italian Grand Prix
- Sept. or Oct. R.A.C. Race Meeting, at Waddon
- Sept. 30 Coupe Deutsch (800 kil.)
- Oct. 16-21 Daily Mail £1,000 Gliding Competition
- Dec. 15- Jan. 2 Paris Aero Exhibition

1923.

- June International Air Congress, London
- Dec. 1 Entries Close for French Aero Engine Competition

1924.

- Mar. 1 French Aero Engine Competition
- Mar. 15 Entries close for Dutch Height Indicator Competition

air force for work of this nature. Nothing could be farther from the truth, but lack of spares and other essentials, caused by a desire for "economy," has so hindered the work and impaired the efficiency that the R.A.F. has not had a fair chance of showing what it can do. Although the R.A.F., Irak, will be in a much more favourable position, inasmuch as it will be in direct contact with the Air Ministry and the Government, and not rely upon the Indian or other Government, the tendency to "economise" is present at home no less than in India, and from the list of equipment published elsewhere in this issue it will be seen that the majority of machines going out with the squadrons are of fairly old type. It is true that so long as these machines are maintained in first-class condition, by good supplies of spares and by adequate ground staffs, they are as good, probably, as those of any other country at the present time, but it should be kept in mind that progress is rapid, and that, in all fairness to the gallant officers and men of the R.A.F., we should not—must not—continue to expect the R.A.F. to do its work on old war stock. There are now in existence British designs far in advance of anything which is being sent out to Irak, and gradually these must replace the older types with which the start is being made.

* * *

Glider or Aviette? In the midst of the enthusiasm for gliding which has been aroused during the last few months, there is already signs of a division of opinion as to whether gliding is, after all, likely to carry us much further, or whether we should not do better by devoting our energies to the evolution of a type of power-driven aeroplane which will fly with engines of a few horse power only. The two schools are both emphatic in their views, but we think that, as usual in such cases, the truth lies somewhere between the two extremes. We have always held that gliding can provide excellent sport, but have never shared the optimistic view that its practice will lead to the development of types of aircraft which will be commercially useful and will be able to make long trips, to a fixed time table and over given routes, by the aid of the energy in the wind only, without other motive power.

The opposite view, that gliding cannot possibly teach us anything, is, to our way of thinking, equally incorrect. Gliding can undoubtedly teach us a good deal about best wing forms, best fuselage shapes, effective controls, and so on. In other words, it provides an opportunity of carrying out, for a very small capital outlay, full-scale experiments which would, if conducted with power-driven machines, cost considerable sums of money. The machine of ultra-low power is certainly a possibility. In fact, it is possible to predict with fair accuracy, without introducing uncertain features, that a small, lightly-loaded, single-seater machine can be built which will fly level—that is to say, will just be able to remain in the air without descending—for a power expenditure of about 4 or 5 horse power. Such a low-powered machine would, however, have no reserve power for climbing, and might easily, we think, be more dangerous than a pure glider in which the pilot would know that no other power was available than that obtainable from the wind.

It has been suggested that progress might be made

by fitting a very low power engine in a glider, and merely using the power when the wind dropped or when the machine got out of an ascending current. We very much doubt if such a procedure would be satisfactory. As soon as an engine is fitted the elements of an ordinary aeroplane are introduced, such as noise, vibration, propeller draught, etc., and it appears to us doubtful whether pilots would be able to change over from gliding to propelled flight, and *vice versa*, sufficiently quickly and at the correct instant to make such a compromise successful. The very presence of an airscrew would detract considerably from the gliding angle of the machine, and then there is the difficulty of starting the engine, should it, as would frequently happen, stop altogether while running throttled down. To re-start would mean a steep dive, with consequent loss of altitude.

To us it seems that the best policy will be to learn as much as we can from pure gliding, and then, with the knowledge thus accumulated, attack the problem of low-power flight afterwards. In that way much more is likely to be learned than if we start off straight away with "Aviettes." That it will ultimately be possible to fly at a speed of 50 or 60 m.p.h. with a power expenditure of about 10 h.p. we are quite prepared to believe, but before the really satisfactory machine can be evolved which will do this we think a thorough study of gliding and soaring should be made.

* * *

The R.A.C. Next Sunday, September 24, the Royal "Coming of Age" Aero Club attains its majority. On that date, in 1901, a party consisting of Mr. Hedges Butler, Miss Vera Butler (now Mrs. Iltid Nicholl) and the late Hon. C. S. Rolls made an ascent in the balloon "City of York" from the Crystal Palace. At an altitude of 5,000 ft. above London, Mr. Hedges Butler suggested the formation of a club to control the science and sport of flying, and the idea was adopted unanimously by the little party. By the time a landing was made at Sidcup the Aero Club was in being. The Club rapidly developed, and did a tremendous amount of good in the services of aviation during the early years when those who believed in the possibilities of flying were ranked as cranks, to say the least. In spite of all handicaps, however, the Club flourished, and in 1912 the Club achieved the honour of becoming known as the Royal Aero Club, Mr. Hedges Butler receiving from the Home Office a letter announcing that His Majesty had been pleased to grant permission to members of the Club "to fly on their aeroplanes, airships and balloons a burgee bearing a representation of His Majesty and surmounted by a Royal Crown."

It is of interest to recall that the inaugural ascent of the Club was made in November 1901, when the "City of York" ascended from Stamford Bridge, piloted by Mr. Stanley Spencer. At an altitude of a few hundred feet above London Miss Butler unfurled a white banner some 12 yards long, bearing the words "Aero Club." The burgee of the Royal Aero Club is now, of course, a familiar sight to all interested in aviation, but in those days few—even among the enthusiasts—would have dreamed of the extent to which flying in all its branches was destined to develop during the next 21 years.

On its formation in 1909 FLIGHT was chosen as the Official Organ of the Aero Club, and has remained so ever since.

THE BOULTON AND PAUL P.9. BIPLANE

It has been maintained that the aeroplane, at present, cannot hope to make much of a success in connection with regular air services within the British Isles, inasmuch as existing means of communication could only be but slightly improved upon. Be this as it may, we are convinced that the aeroplane can be made to serve a very useful purpose here at home in another direction, i.e., as a "private" means of communication, either for business or pleasure. In fact, we are at a

or less hiding its light under the proverbial bushel, is the Boulton and Paul P.9 which forms the subject of the accompanying illustrations and notes.

It will be remembered that there were two of these machines flying in the recent King's Cup Race round Britain, in which their performance, though not of a spectacular nature, was none the less worthy of notice. Piloted by C. T. Holmes and J. C. Tennant respectively, these machines left Croydon



THE BOULTON AND PAUL P.9. BIPLANE : Three-quarter front view.

loss to understand why this side of aviation has not developed more than it has—if it can be said to have developed at all. Aerial taxi work, it is true, is becoming more popular, but the number of owner-pilots in this country is well under the half-dozen, in spite of the fact that "private" flying should be just the sort of thing that would appeal to the British sportsman. It is not that there are any great difficulties in the way to prevent the aeroplane being put to such a use—

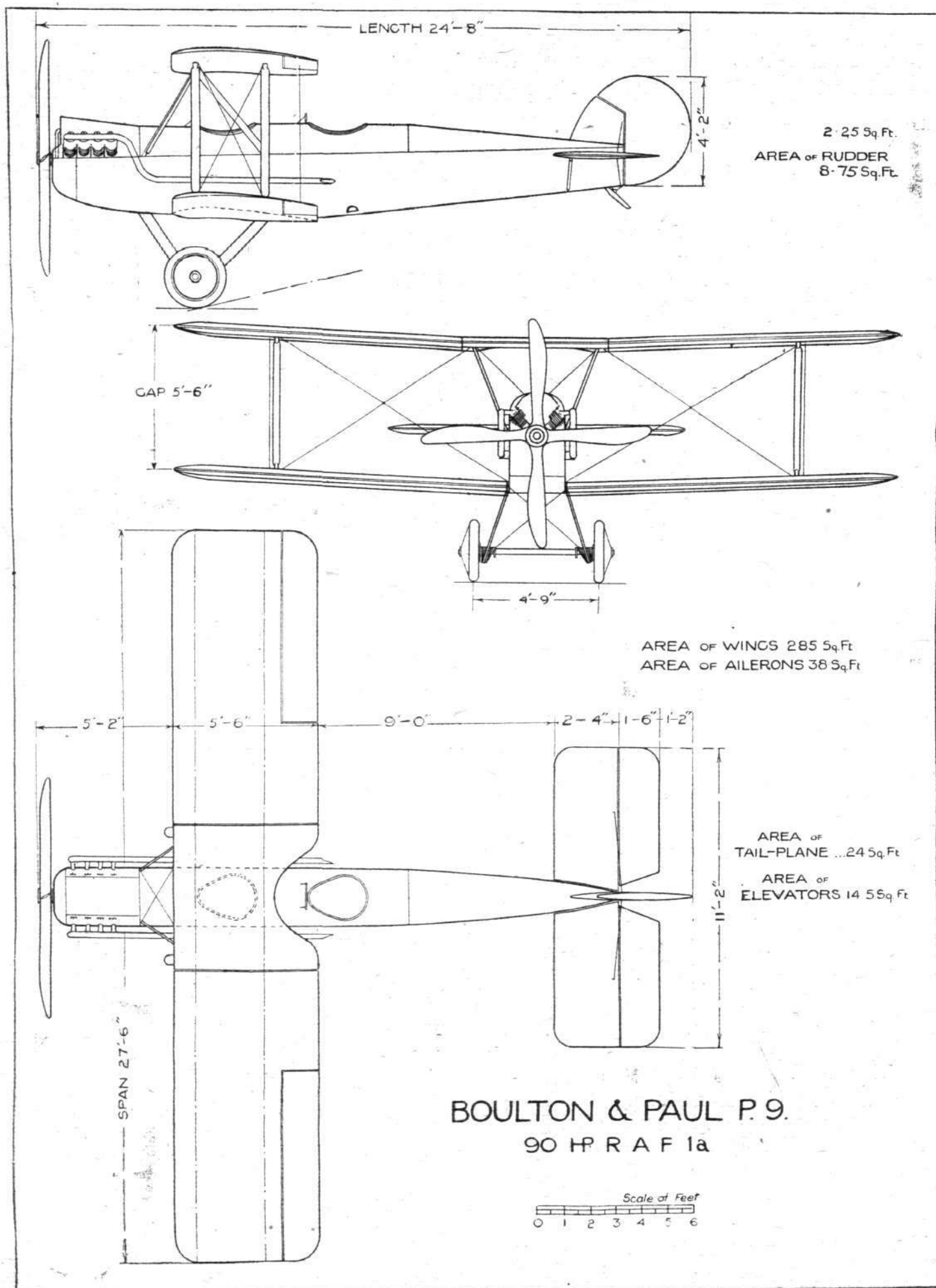
within five minutes of each other, and kept a very steady course, within a few minutes of each other, throughout the race, Holmes averaging 69 m.p.h. and Tennant 68 m.p.h. for the outward journey, the averages for the homeward trips being 85 m.p.h. and 88 m.p.h. respectively. The machine shown in the accompanying illustrations is the one flown by Holmes, and is used by Mr. F. T. Courtney when he wants to "flip" anywhere in a hurry.



THE BOULTON AND PAUL P.9. BIPLANE : Side View.

either for the owner-pilot or the owner with pilot-chauffeur, whilst it has been demonstrated on several occasions that the actual flying can be accomplished with as much safety as with motoring, and with but little, if any, extra cost. Neither is there any dearth of suitable machines, for during the last few years our constructors have produced several machines capable of giving very satisfactory results in this particular class of work. One of these machines, which has been more

The P.9, which has been designed by Mr. J. D. North, is a two-seater tractor biplane of moderate dimensions, and is a plain, straightforward job both in design and construction. The outstanding features of this machine may be said to comprise low initial cost, low cost of running and maintenance and facility in handling both in the air and on the ground. It has a very good speed range and climb, and is nice and easy on the controls—which, together with its general



THE BOULTON AND PAUL P.9.: Plan, side and front elevations, to scale.



THE BOULTON AND PAUL P.9. BIPLANE : Three-quarter rear view.

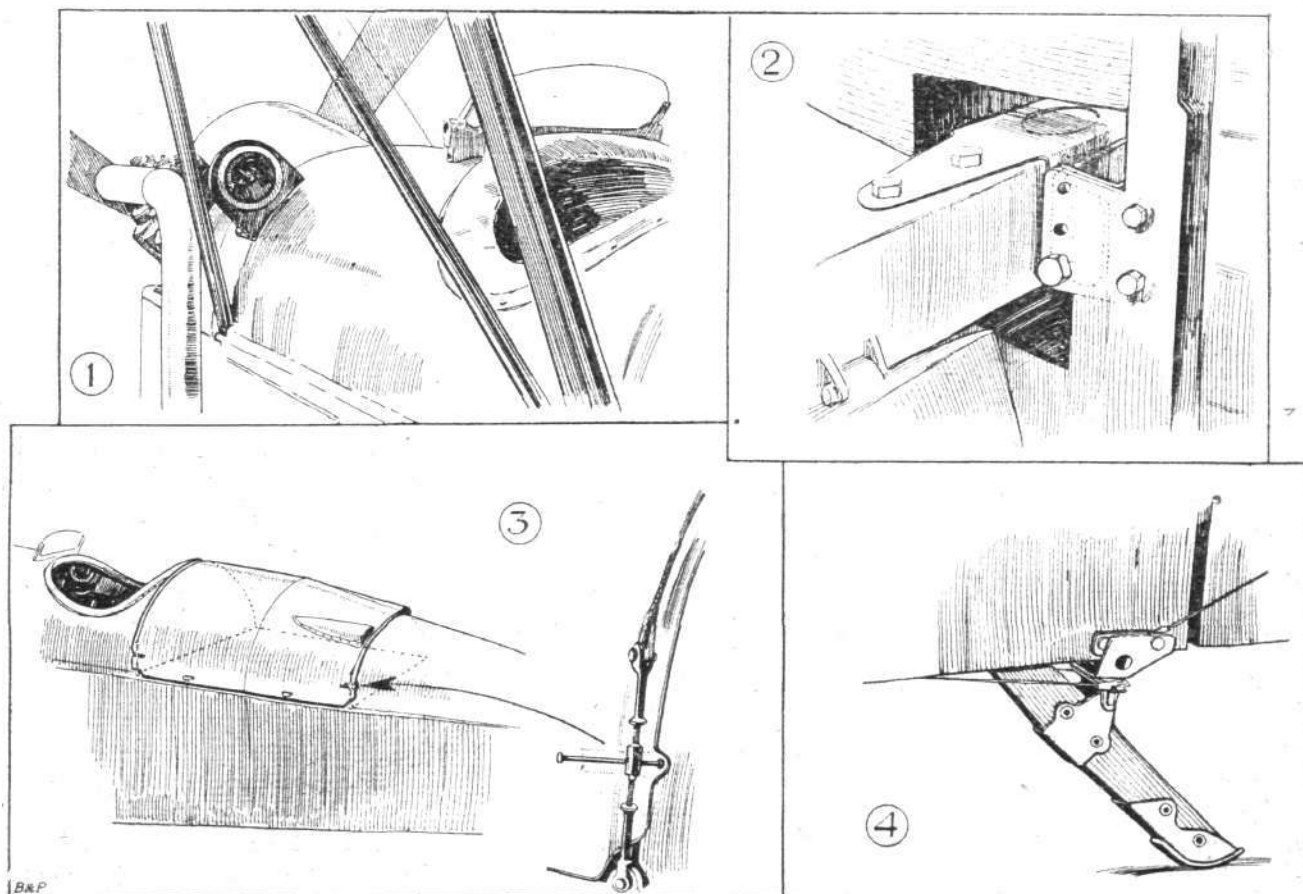
stability, enables it to be flown for long periods without undue fatigue.

The main planes are of orthodox construction, and are equal span (27 ft. 6 ins.) top and bottom. They are made up of five sections, two in the lower and three in the upper. The lower sections are attached direct to the lower longerons of the fuselage, whilst the two outer sections of the top plane are attached to a 5 ft. 6 in. centre section. A single pair of streamline (wood) struts separate top and bottom planes each side, and the centre section is carried above the fuselage by two N's of steel tube, the vertical members having streamline fairings. External wing bracing is by streamline wire, and the front and rear points of intersection of landing and lift wires are connected by a steel tube in

order to reduce vibration. Both planes are set at a dihedral angle of $2\frac{1}{2}^\circ$, and the angle of incidence is 2° . Ailerons are fitted to both top and bottom planes, the control cables from the fuselage being carried inside the lower wing behind the front spar.

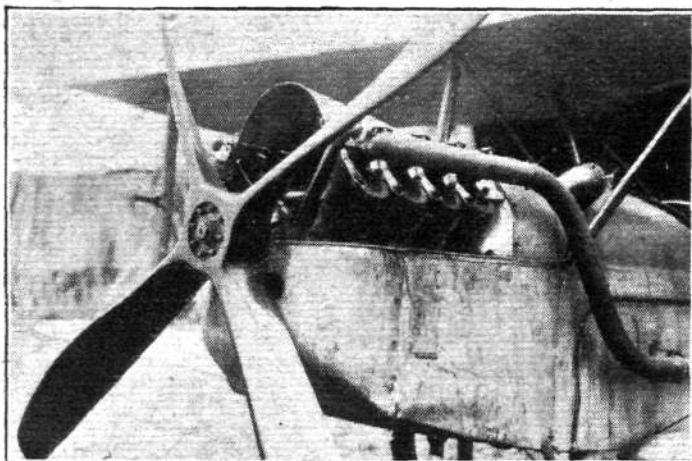
The tail planes consist of a streamline-section horizontal stabilising plane, divided elevators, a vertical fin and balanced rudder. The horizontal plane can be adjusted as regards incidence by means of a lug having three holes arranged vertically, which receives a bracket on the rear spar of the tail plane, a bolt passing through one or other of the series of holes on the lug and bracket. This adjustment is indicated in one of our sketches.

The fuselage is of the conventional rectangular-section



THE BOULTON AND PAUL P.9. BIPLANE : 1. The engine rev.-indicator is mounted in a streamline casing outside the fuselage, where it is clearly visible from both cockpits. 2. The simple adjustment for tailplane incidence. 3. The neat luggage boot behind the rear cockpit. Inset is the simple and effective fastener securing the cover in position. 4. The tail skid, which is connected up to the rudder bar to facilitate steering when taxiing.

girder, wire-braced type, and the top longerons are not horizontal, but slope upwards towards the rear some 10°, so that the tail plane is slightly above the line of thrust. The comfort of the pilot and passenger has been specially considered, and each cockpit is roomy and fitted with special cane seats of ample proportions. The pilot's cockpit is at the rear, but dual control is provided for—the front control "stick" being easily removed when necessary—so that the machine can be flown from either cockpit. Instruments and engine controls are provided in both cockpits, and the engine revolution-indicator is mounted outside the fuselage,



THE BOULTON AND PAUL P.9. BIPLANE: The 90 h.p. air-cooled R.A.F. engine fitted to this machine.

forward of the front cockpit on the port side, where it may easily be read from either cockpit. Just behind the rear cockpit a fair-sized "boot" is formed under the turtle deck of the fuselage, for carrying suit-cases, etc. The cover for this is formed by a sheet-metal cowling with ventilators, which is held firmly in place by two wire cables passing over it, in a groove at each end, from one top longeron to the other. It is very easy to remove, as the cables are held

taut by two wire strainers, which are quickly loosened by means of a tommy-pin, as shown in one of our sketches.

Fabric is employed for the covering of the fuselage except for the engine section and cockpit decks, where three-ply wood is used, and in the nose, which is of metal. The fuselage may easily be laid bare by means of a patent lacing device, similar to that employed in furniture upholstery.

The engine, a 90 h.p. air-cooled Type 1A R.A.F., is mounted direct on to the top longerons, and is partially enclosed by a metal cowling-cum air scoop. It drives, through the usual gearing with this type of engine, a four-bladed tractor screw 9 ft. 3 ins. diameter. The exhaust from the engine is discharged behind the rear cockpit, thus giving a silencing effect and a freedom from fumes.

An orthodox V-type landing chassis is fitted in which the tubular axle is sprung, by elastic cord, from the apex of the V—the cord being protected at the bottom by a metal strip. The front and rear tie-rods of the chassis struts are encased in a streamline metal fairing, and the axle lies in a groove formed in the top of this fairing. A stout tail skid is fitted, and in order to facilitate steering when on the ground, it is connected up to the rudder bar.

The principal characteristics of the P.9 are as follows:—

Span	..	..	..	27 ft. 6 ins.
O.a. length	..	..	..	24 " 8 "
O.a. height	..	..	..	10 " 0 "
Chord	..	..	..	5 " 6 "
Gap	..	..	..	5 " 6 "
Angle of incidence	..	..	..	2°
Dihedral angle	..	..	..	2½°
Area of main planes	..	..	..	285 sq. ft.
Area of ailerons	..	..	..	38 "
Area of tail plane	..	..	..	24 "
Area of elevators	..	..	..	14½ "
Area of fin	..	..	..	2½ "
Area of rudder	..	..	..	8½ "
Weight of machine empty	..	..	..	1,244 lbs.
Weight of machine (full load)	..	..	..	1,770 "
Weight per h.p.	..	..	..	17.7 "
Weight per sq. ft.	..	..	..	6.3 "
Speed (full load, 1,000 ft.)	..	..	..	104 m.p.h.
Climb (full load), in 8½ mins.	..	..	..	5,000 ft.
Ceiling	..	..	..	14,000 ft.
Range (full throttle)	..	..	..	3 hrs.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN SEPTEMBER 3 AND SEPTEMBER 16, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
			Mails	Goods				
Croydon-Paris ...	103	295	38	72	101	h. m 2 24	D.H. 34 G-EBBU (1h. 47m.)	B. (5), D.H. 34 (6), G. (10), H.P.W.8B (3), Sp. (5), Vi. (1).
Paris-Croydon ...	110	331	22	64	97	3 10	D.H. 34 G-EBBU (1h. 58m.)	B. (5), D.H. 34 (6), G. (10), H.P.W.8B (3), H.P. 400 (1), Sp. (5), Vi. (1).
Croydon-Brussels ...	12	62	—	—	11	2 20	D.H. 34 G-EBBW (1h. 56m.)	D.H. 18 (1), D.H. 34 (4).
Brussels-Croydon ...	12	61	—	—	12	2 44	D.H. 34 G-EBBW (2h. 3m.)	D.H. 18 (1), D.H. 34 (4).
Croydon-Rotterdam-Amsterdam.	12	3	11	11	12	2 35	Fokker H-NABM (2h. 9m.)	F. (6).
Amsterdam-Rotterdam-Croydon.	11	25	9	9	10	2 57	Fokker H-NABV (2h. 9m.)	F. (6).
Totals for 2 weeks.	260	777	80	156	243			

* Not including "private" flights.

† Including certain journeys when stops were made *en route*.

‡ Including certain diverted journeys.

§ Rotterdam.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.).
F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. M. = Martinsyde. Sp. = Spad.
Vi. = Vickers Vimy. Vu. = Vickers Vulcan. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Co. des Grandes Expresses Aériennes; Daimler Hire, Ltd.; Handley Page Transport, Ltd.; Instone Air Line; Koninklijke Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

Incidental Flying.—A bi-daily service between Lympne-Ostend has been maintained by the De Havilland Co. A busy time was spent at Croydon by the Aircraft Disposal pilots testing various machines.

GLIDING, SOARING AND AIR-SAILING

Those wishing to get in touch with others interested in matters relating to gliding and the construction of gliders are invited to write to the Editor of *FLIGHT*, who will be pleased to publish such communications on this page, in order to bring together those who would like to co-operate, either in forming gliding clubs or in private collaboration.

GLIDER or Aviette is a question which appears to be well to the fore at the present moment. In Germany there is, at the moment, a preponderance of the "pure gliding" school, while in France—due probably in some measure to the relatively poor results obtained at Combe-grasse—there are many who maintain that we are on the wrong track in spending time and money on gliding experiments, and that greater progress would be made by studying the problem of mechanically-propelled flight with machines fitted with engines of very low power. M. Blériot, the famous French pioneer, has no great belief in the future of the glider, but thinks that the "motor-cycle of the air" offers possibilities. He has backed up his opinions by offering a prize of 15,000 francs to the French pilot who, flying from the French coast, across the Channel, turning above British soil and returning to alight on French soil, has made the double crossing of the Channel with the smallest fuel consumption. To win the prize it is necessary that the petrol consumed must not exceed 3 litres (0.66 gall.). It will be remembered that M. Blériot was the first to fly across the Channel (in 1909), and that his flight, made on the small Blériot monoplane with a fan-type Anzani engine of 28 h.p., was in those days quite as difficult a feat as is the one which he now demands from competitors for his prize.

GRADUALLY the durations established with gliders in France are being increased. Barbot, who, after the closing of the meeting at Combe-grasse, made an unofficial flight of 9 minutes' duration, has now increased this to 20 mins. 31 secs. Starting from the Superbagnères in the Pyrénées, he headed into a fairly strong wind, and succeeded in remaining aloft for the period stated. It is not known where he landed, but his starting-point was about 6,000 ft. above sea level. If the flight is homologated it will constitute a record for France.

As we have received from a number of readers requests to publish particulars of some of the successful wing sections used on German gliders, we give below the dimensions and aerodynamic characteristics of the section known as Göttingen No. 441. The dimensions of this section, expressed in percentage of the chord at stations placed at the stated distance from the leading edge, similarly expressed, are as follows:—

Dimensions of Göttingen No. 441 Section					
Station (per cent.).	Camber (per cent.).		Station (per cent.).	Camber (per cent.).	
	Upper.	Lower.		Upper.	Lower.
0	3.19	3.19	40	16.97	2.48
1.25	6.12	1.06	50	15.43	3.30
2.5	7.45	0.53	60	13.56	3.72
5.0	9.68	0.11	70	10.90	3.72
7.5	11.60	0.00	80	7.80	3.24
10	13.03	0.11	90	4.26	1.88
15	15.16	0.35	95	2.32	1.06
20	16.49	0.80	100	0.27	0.00
30	17.55	1.60			

The aerodynamic characteristics were found by experiments in one of the Göttingen wind tunnels to be as follows:—

Angle of incidence.	L _c (absolute).	L/D.	Angle of incidence.	L _c (absolute).	L/D.
— 8	0.075	1.7	6	0.56	11.0
— 6	0.120	4.0	8	0.62	10.0
— 4	0.200	14.5	10	0.68	9.4
— 2	0.275	15.2	12	0.73	8.5
0	0.34	14.6	14	0.78	7.7
2	0.42	13.3	16	0.80	6.8
4	0.48	12.2	18	—	5.8

RECENTLY we announced that it was rumoured that the de Havilland Aircraft Co. were building a glider, but that



The Record Breaker: Herr Hentzen, in the cockpit of his famous "Vampyr," on which he remained aloft for 3 hrs. 10 mins. This machine, as distinct from the Hannover "Greif," has a flat-sided fuselage.

CAPT. F. WARREN MERRIAM, who taught we forget how many thousand R.N.A.S. and R.A.F. pupils to fly during the War, is, we learn, quietly building a glider down on the Isle of Wight. It is, we believe, our old friend Merriam's intention to enter the glider for the *Daily Mail* competition this autumn, and his many years' experience on the old "box kites" should stand him in good stead: after all, flying a box kite (50 Gnome) with a passenger behind you was not unlike flying a glider. If you wanted to get upstairs you had to make use of every little gust to help you, otherwise the climb was not spectacular. We are extremely glad to hear of one of the "old boys" taking up this new sport, and should like to hear from others interested.

we could not vouch for the accuracy of this statement. We now learn that, for once, rumour is true, and that the machine is, in fact, being built. The glider is to be flown by Capt. Herne, the Daimler pilot, and if it comes up to expectations he intends, after a few practice flights, to make an attempt to fly across the Channel on the machine. Capt. Herne has observed that even power-driven aeroplanes feel the up-currents over the cliffs along the Kentish coast, and he thinks that a light glider, by making use of these, could climb sufficiently high to enable it to glide right across the Channel. As the gliding angle of a good "sail-plane" might be in the neighbourhood of 1 in 16 or 1 in 18, the feat is not, perhaps, so impossible as might appear at first sight.

HERR KLEMPERER, the famous pilot of the Aachen monoplane glider, who won the Rhön competition last year, has had a nasty accident on his machine recently. He had his machine secured to a kite balloon, and when at a considerable height cut it adrift with a view to gliding down. It appears, however, that something went wrong with the machine, as it is stated to have got into a spin which the pilot could not stop. It seems probable that the controls of the glider must have got jammed in some way, and that this was the

cause, otherwise there is no reason why the machine should not be capable of being pulled out of the spin. Fortunately, Herr Klemperer was not seriously injured. The statement which has appeared in the Press to the effect that the machine fell 4,000 ft. in 15 seconds is, of course, inaccurate. Even diving vertically at terminal velocity the machine could not have attained such a rate of descent, which would be equivalent to a speed of 180 m.p.h. Nevertheless, Herr Klemperer was fortunate in getting off so lightly.

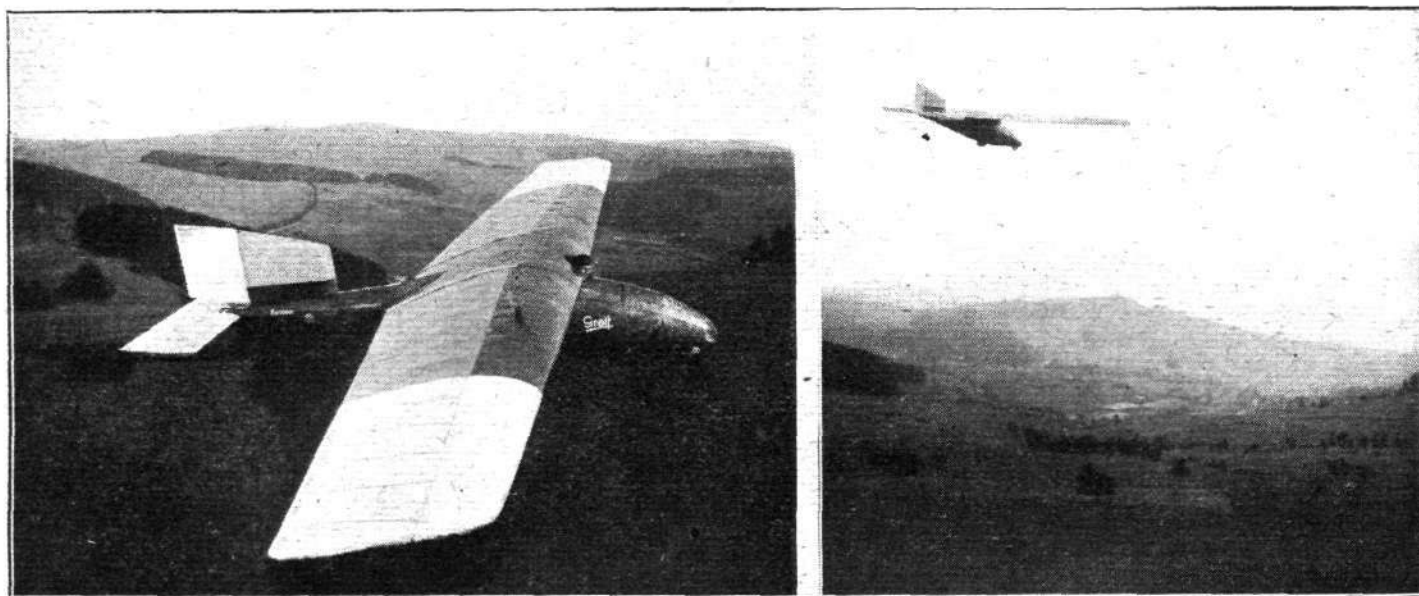
GERMAN GLIDERS

THE RHÖN COMPETITION, 1922

Particulars of the Machines Entered

IN last week's issue of FLIGHT we published a photograph of the Hannover "Vampyr" on which Herr Hentzen remained in the air for 3 hours 10 minutes, thus winning the Great Rhön Sailing Prize (*Grosser Rhön-Segel-Preis*) of 50,000 marks.

machines, while brief reference is made to the main features of some of the more interesting gliders of those which took part in the competition. It should be understood that not all the 53 machines entered turned up, while out of the

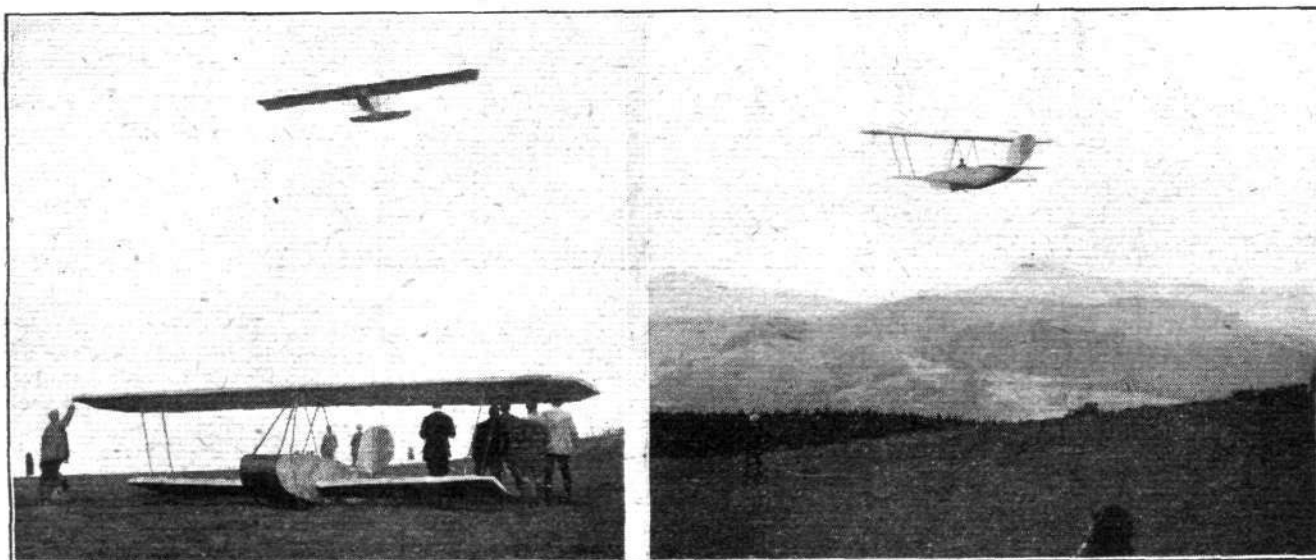


The Hannover "Greif" (Condor) is a refined edition of the famous "Vampyr," but has not yet been sufficiently tuned up to do very extended flights, although a number of very creditable flights have been made on it. The monoplane wing has a pronounced taper, and the fuselage is carefully streamlined. The right-hand photograph, which shows the "Greif" in flight, gives a good idea of the Rhön hills.

Owing to the space occupied by the report of the King's Cup Race around Britain, it was not possible to publish particulars of the 53 machines entered for the German competition and illustrations of some of the more interesting of these. We promised, however, that this information should be published in the present issue, and consequently on p. 548 will be found a table giving data relating to all these

number that did take part not more than a comparatively few achieved notable success, although many put up very creditable performances.

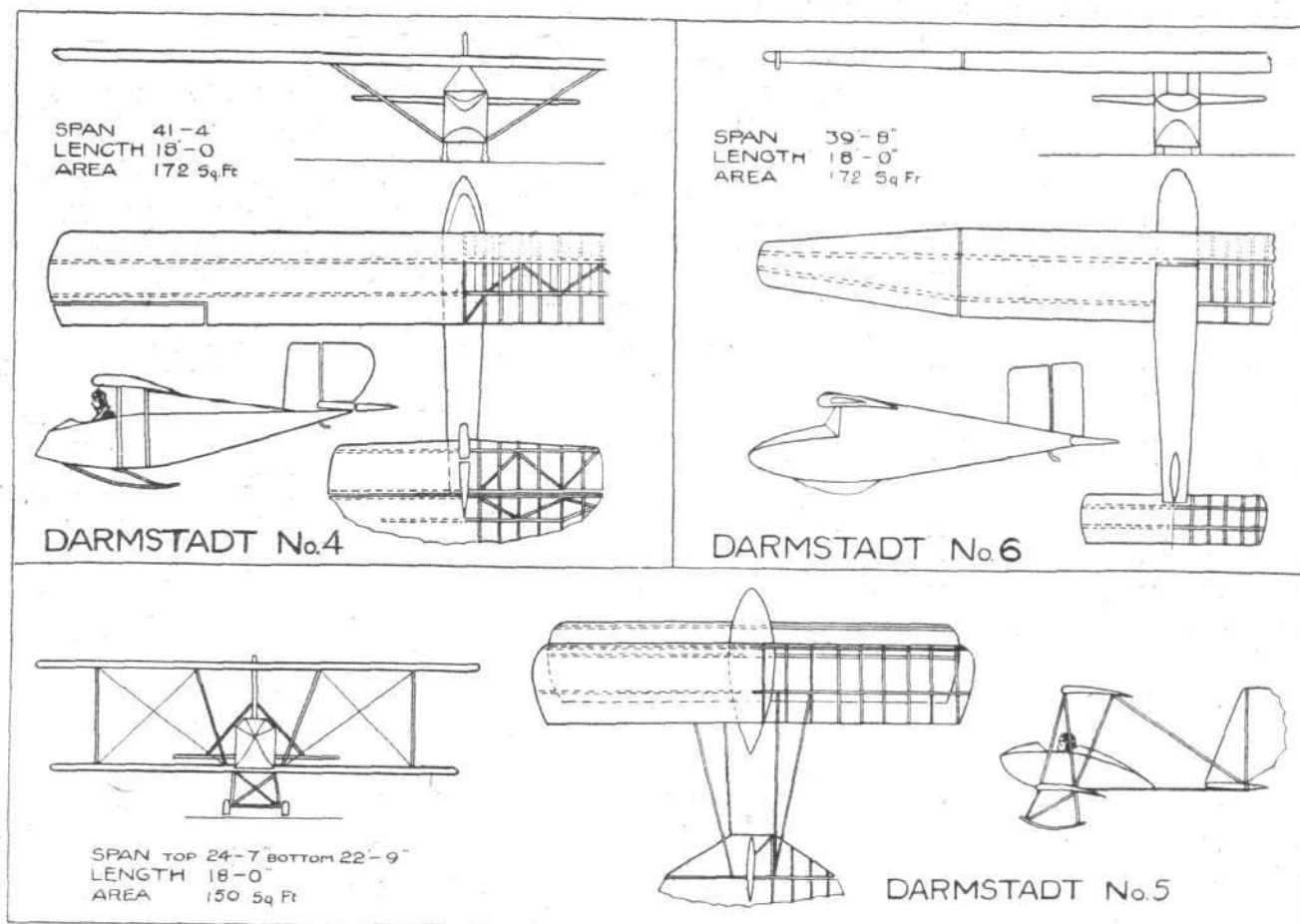
Referring to the accompanying table, it will be seen that the monoplane type was in the majority by far, 38 machines being of this type, while only 15 were biplanes, or a percentage of monoplanes of more than 70 per cent. This fact may



The Darmstadt monoplane, piloted by Bottsch, flying over the Dresden biplane. In the right-hand photograph the Dresden biplane is shown just after getting away. Note the two men holding the starting rope.

be accounted for partly by the fact that the Germans have for a number of years specialised on the development of thick-section cantilever monoplane wings, and partly by the resemblance of the monoplane to a bird. It may be assumed

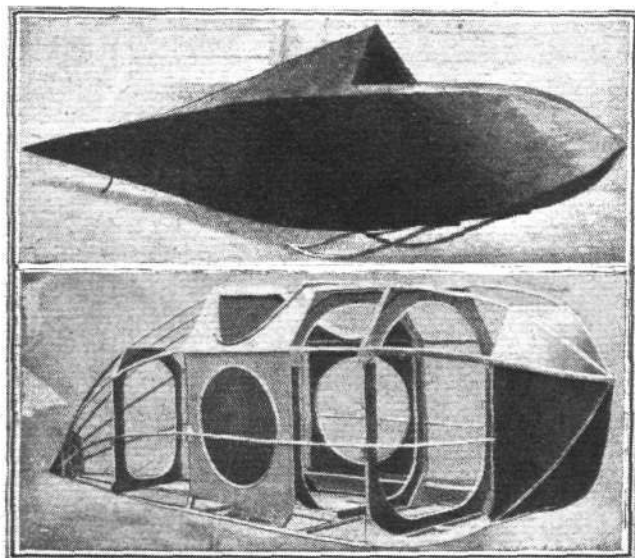
type, and all that can be definitely asserted at the moment is that, up to the present, the monoplane type appears to have achieved most successes in the matter of carrying off prizes.



THE THREE DARMSTADT MACHINES : General arrangement drawings.

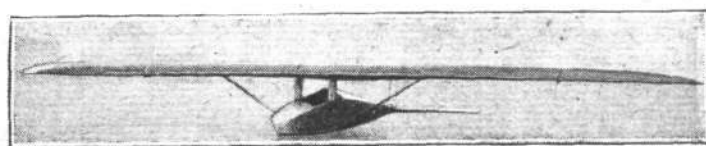
that among those who entered machines not a few were amateurs in design, and to these it is natural to suppose that the monoplane would appeal strongly, with its possibilities of clean outlines, unmarred by the unsightly struts and bracing of the biplane. It should be pointed out, however, that as yet there are not sufficient data available to enable one to state definitely that the monoplane glider is necessarily the better form. In spite of its cleaner lines the

The Hannover "Vampyr."—A scale drawing of the Hannover monoplane on which first Martens and later Hentzen made such remarkable flights was published in our issue of August 31, 1922. This drawing represented the machine in the form in which it was used in 1921. It was pointed out that alterations had been made, and from the photograph published on p. 534 in our last issue (this photograph was taken almost directly from below the machine) it was apparent that the chief alteration was the addition of triangular pieces to the trailing edge of the wing tips. In its earlier form the machine had tapered wings, but the alteration made turned this taper into swept-back tips and also slightly increased the area. One result of the change would appear to be a slight shifting to the rear of the centre of pressure, and it may be assumed that in its original form the machine was slightly tail-heavy. It seems reasonable to suppose that a glider should have its centre of gravity fairly far forward and its tail set at a negative angle, and this was probably done in the "Vampyr." The constructional features were dealt with in our description of the machine on August 31, and it will therefore suffice to recall that the fuselage is three-ply covered, with flat sides. The wing has but a single spar, and the necessary torsional stiffness is obtained by covering



TWO DARMSTADT FUSELAGES : Top, the body of the Type 4 monoplane ; bottom, the nacelle of the biplane.

cantilever monoplane must necessarily work out somewhat heavier than the braced biplane, and it is at least open to discussion whether the extra weight can be counterbalanced by the lower resistance and consequent finer gliding angle of the monoplane. Time alone can show which is the better



THE HART-MESSERSCHMIDT FUSELAGE MONOPLANE : This is an experimental type, the standard machine having open tail girders and no cockpit.

the entire leading edge with thin three-ply wood, which, with the spar, forms a D-section tube of light weight, as well as having the advantage of retaining the correct shape of the front part of the wing section. Footballs are used as

RHON COMPETITION, 1922

Table of particulars of all the machines entered

No.	Entrant.	Constructor.	Type.	Length o. a.	Span.	Area.
				ft. in.	ft. in.	sq. ft.
1	Aachen St. dienges. fur Segelflug.	Aachen Airc. Wks.	M	15 9 37	9	237
2	Aug. Neesemann	Aug. Neesemann	B	11 10 24	7	187
3	G. Espenlaub ..	G. Espenlaub ..	M	16 5 55	10	183
4	W. Rebmann ..	W. Rebmann ..	B	9 3 17	8	135
5	F. Th. Zeise ..	A. Neesemann ..	M	12 4 39	5	188
6	Hannover Group	Hannover H. Sch.	M	16 5 41	4	172
7	Hannover Group	Han. High Sch.	M	16 5 38	0	161
8	Hannover Group	Han. High Sch.	M	16 5 40	0	161
9	J. Kempf ..	J. Kempf ..	M	13 2 24	7	140
10	W. Hirth ..	Hart-Messer-schmidt	M	14 9 46	0	204
11	W. Hirth ..	Hirth, Keidel ..	B	10 6 18	5	155
12	W. Hirth ..	Hart - Messer-schmidt	M	14 5 46	0	204
13	Weltensegler Co.	Segelflugz. Baden	M	16 5 36	1	161
14	Weltensegler Co.	Segelfl. Baden ..	B	16 5 36	4	215
15	W. Pelzner ..	W. Pelzner ..	B	8 7 13	2	129
16	W. Pelzner ..	W. Pelzner ..	M	9 10 32	9	172
17	Akademische Fliegergr.	Darmstadt H. Sch.	M	16 5 41	5	172
18	Darmstadt High School	Bahnbed. Darmstadt	M	16 5 39	5	172
19	P. Jeyes..	Darmstadt H. Sch.	B	16 5 25	0	150
20		Aachen Airc. Works	M	19 8 30	3	172
21	Frankfurt Ae. Club	Frankfurt Ae. Club	M	23 0 36	1	194
22	G. R. Eck ..	G. R. Eck ..	M	18 1 31	3	178
23	C. Möbius ..	Möbius & Pocher	M	16 5 36	1	172
24	Stuttgart Techn. Soc.	Stuttgart Techn. Soc.	M	18 1 38	1	172
25	Gotha Gliding Soc.	Gotha Gliding Soc.	M	20 4 42	7	177
26	E. Schatzky ..	Hart - Messer-schmidt	M	14 10 46	0	204
27	Fränk. Fl. Soc...	L. Schaefer ..	M	17 5 39	5	280
28	Dresden Fl. Soc.	Dresden Fl. Soc.	B	15 1 29	7	202
29	Dresden Fl. Soc.	Dresden Fl. Soc.	M	14 10 41	5	167
30	K. Bacher ..	K. Bacher ..	M	14 10 30	1	134
31	Hamburg Avtn. Soc.	Hamburg Avtn. Soc.	M	16 5 42	7	215
32	Berlin Tech. High Sch.	Berlin Tech. High Sch.	M	14 10 50	0	215
33	Weltensegler Co.	Baden Glider W.	B	16 5 26	3	215
34	Glider Works, Baden	Glider Works, Baden	M	13 2 49	3	172
35	Glider Works, Baden	Glider Works, Baden	M	13 2 49	3	183
36	East Pruss. Soc.	Hart - Messer-schmidt	M	16 5 46	0	194
37	Fokker Works	Fokker Works, A'dam	B	21 4 29	6	290
38	Fokker Works ..	Fokker Works ..	B	21 4 39	5	388
39	Aircraft Co., Berlin	Aircraft Co., Berlin	M	23 4 32	10	—
40	Schütte-Lanz Co.	Schütte-Lanz Co.	M	14 10 46	0	215
41	H. Wiszkirchen..	H. Wiszkirchen..	B	13 2 23	0	161
42	F. Schulz ..	F. Schulz ..	M	14 10 41	0	172
43	J. Kempf ..	J. Kempf ..	B	10 4 18	1	145
44	Weltensegler, Baden	Weltensegler Works	M	9 10 49	3	172
45	North Bavarian Soc.	North Bavarian Soc.	M	14 10 36	1	177
46	Dr. M. Sultan, Berlin	Dr. M. Sultan, Berlin	B	10 2 21	4	156
47	Willi Drude ..	Willi Drude ..	M	14 10 32	9	161
48	Rhön Glider Soc.	—	B	13 2 21	4	177
49	Aachen Tech. High Sch.	Aachen Tech. High Sch.	B	14 1 26	2	188
50	Aachen Tech. High Sch.	Aachen Tech. High Sch.	M	18 1 39	5	183
51	Caspar Works ..	Caspar Works ..	M	16 5 42	7	236
52	Bavarian F. Club	C. Schöner ..	M	13 2 41	0	161
53	North Bavarian Fl. Soc.	North Bavarian Fl. Soc.	M	16 5 36	1	177

M = Monoplane ; B = Biplane.

"wheels," two being mounted under the deepest portion of the fuselage, one under the nose and one under each wing tip.

The Hannover "Greif."—In addition to the "Vampyr" two other monoplanes were entered by the students of the Hannover High School. One of these, known as the "Mucki" ("Sulky") seems to have lived up to its name, as we have been unable to discover that it made any noteworthy flights. The other is a very pretty little machine called the "Greif" (Condor), of which photographs are published herewith. This machine is a refinement of the "Vampyr," having a carefully streamlined fuselage and tapered cantilever wings. The machine is said to be less pleasant to fly than the "Vampyr," possibly because it has not yet been so thoroughly flown-in ("eingeflogen," the Germans call it) as the older model. Several very good flights were, however, made with the "Greif," and when perfected as regards trim, etc., by extensive trials and alterations should prove a very fine little machine. It is somewhat smaller in span and area than the "Vampyr," and probably the wing loading is slightly greater, but, on the other hand, the drag of the complete machine is probably considerably lower, owing to the better streamlining. The "Greif" appears to have but a single football "wheel" under the centre line of the fuselage, and when on the ground one wing tip is always touching. Possibly this fact may be in part responsible for the relatively small use that was made of this machine, as there would appear to be considerable risk of damage to the wing tips in landing.

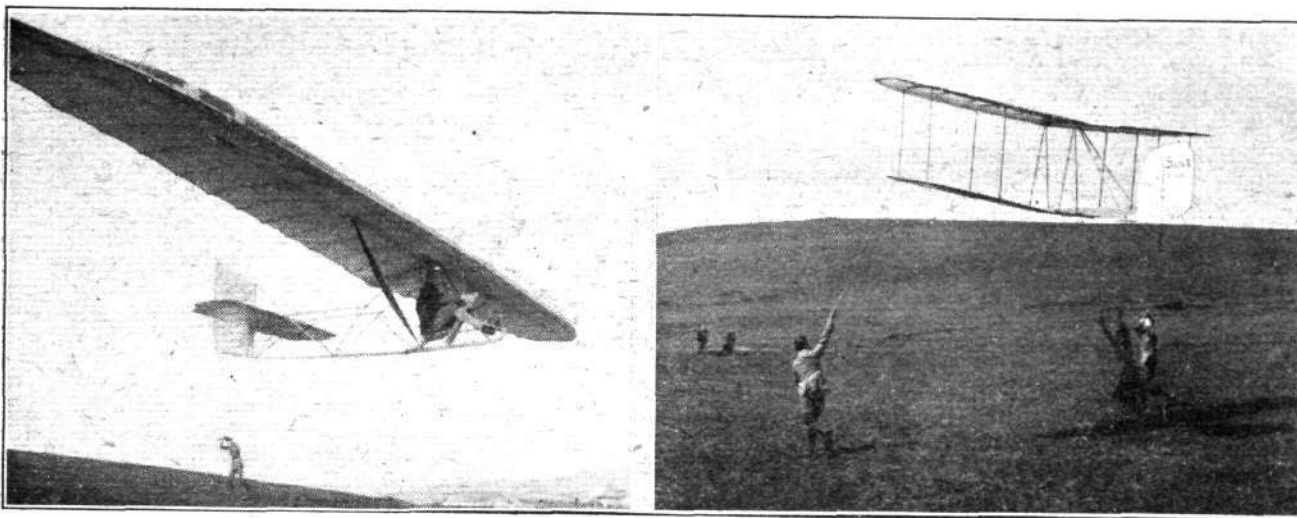
The Darmstadt Machines.—Of the various "groups" that competed at Rhön the Hannover students did best of all, owing to the remarkable flights made by Martens and Hentzen on the "Vampyr." So much was this the case that nearly all the first prizes were won by representatives of the Hannover High School. Other institutions, however, also collected respectable prizes, notably the Darmstadt "group" (Akademischer Fliegergruppe, Hochschule, Darmstadt), whose students had entered three machines for the competition. By the courtesy of Flugsport we are able to publish, in addition to our own photographs, general arrangement drawings of the three Darmstadt machines, two of which are monoplanes and one a biplane.

Of the three Darmstadt machines the one which appears to have done best is No. 4 ("Edith"), which was piloted by Bottsch. This machine, which is shown both in photographs and scale drawings, is a parasol monoplane, in general arrangement not unlike the Hannover "Vampyr"; that is to say, it has a ply-wood covered fuselage with a monoplane wing placed above. The wing construction is, however, somewhat different from that of the Hannover machine, notably on account of the employment of two wing spars. The "Edith" is not a true cantilever machine, as two struts on each side slope outwards for a considerable distance from the lower longerons of the body. The monoplane wing is straight and non-tapered both in chord and thickness, and is built up of two halves joined on the centre line of the fuselage. As in the Hannover, the entire leading edge is covered with three-ply wood to give extra stiffness and to retain the shape. The fuselage is rectangular section with a triangular portion added behind the pilot's seat. The under-carriage is in the form of two skids (flexible) of ash. The weight of the machine empty is stated to be 200 lbs., so that assuming a weight of 160 lbs. for the pilot, the total loaded weight is 360 lbs. and the wing loading $\frac{360}{172} = 2.1$ lbs./sq. ft.,

which is fairly high for a glider. Nevertheless, Bottsch on this machine was awarded third prize in the competition for slowest rate of descent. The Darmstadt monoplane No. 6 ("Geheimrat") was piloted by Hackmack, and received second prize in the slow rate of descent competition. Generally speaking, the "Geheimrat" is not greatly different from "Edith," but its monoplane wing is divided into three separate portions, a large centre section and two tapered end pieces. The wing is so mounted that the angle of incidence can be adjusted during flight. The weight of the machine is the same as that of the "Edith" (200 lbs.), as is also the wing loading. The wing is carried on two vertical extensions of the sides of the fuselage, and no external bracing struts are employed.

The third Darmstadt machine is a small biplane with a short enclosed nacelle and open tail booms. To a certain extent the machine is reminiscent of the early Caudron biplanes, except that the skids on which it lands are not continuations of the lower tail booms, but are a separate structure. The biplane wings show the usual wire bracing, but lateral control is by wing warping. One of our photographs shows the construction of the nacelle. As in the monoplane, three-ply wood is extensively used.

In our introductory remarks it was pointed out that the



On the left Baron Freyberg is seen flying the Hart-Messerschmidt monoplane. Note the central skid and open tail boom girder. On the right Dr. Sultan is shown testing his light biplane glider as a kite before launching it as a glider.

cantilever monoplane is necessarily somewhat heavier than a biplane structure. The wing area of the Darmstadt biplane is 150 sq. ft., and the weight empty is 110 lbs., so that with pilot on board the wing loading of the biplane is approximately 1.8 lbs./sq. ft., in spite of the fact that the area is some 22 sq. ft. smaller than that of the monoplanes. On the other hand, the monoplanes probably have a considerably higher maximum lift coefficient.

The Dresden Machines.—Flugtechnische Verein, Dresden, were represented by two machines, one a monoplane designed this year, which does not appear to have accomplished very

much, and the other last year's machine, a biplane known as the F.V.D. 1921. This machine is shown in the accompanying photographs, and its main dimensions are given in the table of characteristics. It is a biplane of fairly orthodox design, and, like the Darmstadt machines, lands on skids. Piloted by Seiferth and Spies, the Dresden biplane won first prize for total duration in the air, with 1,851 secs. This aggregate was, of course, obtained as a result of a great number of flights. This machine also won second prize in the distance competition, with a distance of 2.7 km. (1.7 miles), and sundry other prizes.

CRISMS FROM THE FOUR WINDS

It is difficult to form any very clear opinion of the true facts of a case which has been given considerable prominence in the Press during the week. We refer to the position of Peter Hooker, Ltd., of Walthamstow. As is well known, this firm is in voluntary liquidation, and a receiver has been appointed, and it appears that the question now arises whether the Treasury is justified in waiving one of its rules—not to place orders with a firm in liquidation. From the facts that have appeared, it seems that there is hope that the Treasury sanction might be obtained, but that the Air Ministry has refused to place an order with the Walthamstow firm, the allegation being that the Air Ministry has expressed willingness to place the order for the new engine (which the firm is stated to have developed) with another firm. The matter really appears to be quite simple. If the firm in question has produced an engine which marks a step forward (we have no knowledge whatever of the facts), and the firm is willing to wait until next year for payment, it is clearly the duty of the Air Ministry to place the order with Peter Hooker's and not with another firm. On the other hand, if the reason is simply the Treasury regulation, and the idea is to get around it by having the order placed with another firm, then it certainly appears unjust to make the development of a new engine contingent upon the handing over of all drawings by the originators, simply because of some red-tape rule. Surely with a little goodwill on all sides it should be possible to arrive at some arrangement more fair to all concerned, if the merits of the new engine entitle it to consideration.

If Sir John Salmond has been quoted correctly, it would appear that there has been very good justification for the criticisms levelled against India's neglect of her Air Service.

Sir John is reported to have stated that out of six squadrons, totalling 70 aeroplanes, not more than 10 machines were fit to take the air, owing to the embargo placed by the Indian Government upon urgently needed spares from home. However, it may be taken as read that Sir John Salmond, in the report which he has prepared, has expressed his views in no uncertain terms, and that, in view of the publicity recently given to the state of affairs, improvements will not be long delayed. It should, of course, be clearly realised that the Air Ministry is not to blame in the matter, as the personnel and *matériel*, once having been supplied, pass from the control of the Air Ministry. The blame lies with the Indian Government and with the Commander-in-Chief, and the whole affair provides a striking example of the folly of misguided "economy."

EVERY now and then the question of Diesel or semi-Diesel types of aero engines crops up, and occasionally the statement is made that at last the engine is within sight. Usually the truth is that some sort of results have been obtained with single-cylinder units, but from that to the complete engine, mounted on an aircraft and not on a very substantial test bed, is rather a far cry. The one is by way of being a laboratory experiment, while the other is a hard reality. It appears, however, that at last rumour is really beginning to approach to being fact. The new engine which is being developed by Beardmores is stated to be nearly completed, and from preliminary experiments it appears that there is promise of the new engine carrying us a long step towards the practical high-compression engine which, when it arrives, will do perhaps more than any other single item in changing the expression "Civil aviation" into "Commercial aviation."

LONDON TERMINAL AERODROME

Monday evening, September 18.

AFTER the excitement of the Round-Britain Race, the aerodrome has appeared particularly quiet this week, even though there is still a steady stream of passengers in and out. The arrangements for the opening of the new British services have advanced a few steps forward, but, generally speaking, there is an air of expectancy prevailing, and existing services appear to be run in a half-hearted sort of way.

On Friday afternoon one of the Daimler machines left on a trial trip over the London-Berlin route to make arrangements for the running of the regular service. This machine was G-EBBS, which has now nearly 90,000 miles of airway flying to its credit, and carried as passengers Col. Searle and Maj. Woods Humfreys, while Capt. Hincheliffe, who is to be aerodrome manager for the Daimler Airway at Amsterdam, acted as pilot. In addition, a representative of the insurance company travelled in the machine, evidently to appraise the risks along the new route.

There is a considerable amount of negotiation going on between the Air Ministry and the German Government. The latter are attempting to use the fact that we wish to run British air services to Germany as a lever to enable them to obtain the removal of some of the Allied restrictions on German commercial flying. It is probable that the visit of Col. Searle, who is to meet representatives of the Deutsch Luft Reederei, the biggest of the German commercial air firms, will do much to bring these differences to a satisfactory conclusion, and probably some working agreement will be made between the two companies.

Plans for a Motor-Cycle of the Air

I UNDERSTAND that when M. Fokker, the famous Dutch designer, heard that Capt. Hincheliffe was to be stationed at Amsterdam, he immediately enlisted his aid in connection with his gliding experiments, and these are now to be elaborated, and flights made along the Dutch coast. M. Fokker's ultimate idea is to evolve a small semi-glider, with a 2 h.p. engine, that will, he hopes, make flying a popular sport.

A dramatic incident occurred on the aerodrome on Thursday just before the Instone air-liner left for Paris at 11.30 a.m. One of the passengers, who had arrived in his own car to travel by this machine, was detained by the C.I.D. man in the immigration office, and was later arrested by Scotland Yard detectives. It appears that a warrant had been out for his arrest since June 22, and he had already been across to the continent twice by boat and train without being detected.

So close is the watch now kept at the air-station, however, that he was immediately recognised as one of the long list of people whom the C.I.D. officers have orders to detain. He was quite resigned to his fate, and sent his own car to Scotland Yard to fetch the detectives with the warrant to arrest him. This is the first time that anyone has been arrested here while attempting to leave the country by air.

Capt. E. D. C. Herne, of the Daimler Airway, made an extremely rapid motor-car journey from Paris to London during the week. He had a day's leave from flying, and spent it fetching a motor-car chassis from Paris. He left London on the night train, and, arriving in Paris about 6.30 a.m., took delivery of a Hispano chassis, and set off for London, driving this chassis, at 8 a.m. In spite of the

fact that he had to have this chassis hoisted aboard a cargo-boat, and then run round and catch the passenger steamer, himself in order to get across the Channel—with a similar performance on this side when it was unloaded—he reached the air-station, covered in mud, by about six o'clock the same evening. He tells me that along the French roads, he was touching 85 m.p.h. at times!

Capt. Leverton, of the K.L.M., has been over to Rotterdam during the week to visit the aviation meeting there, and presumably to talk over the coming opposition in the shape of the competition from the new Daimler line through Holland to Berlin.

He tells me that the aviation meeting has been a great success, and that the arrangements of the hotel and offices at the Rotterdam aerodrome are ideal. The buildings are so arranged that it is possible to sit in the hotel and watch all that is going on. The authorities there have taken every step to make the meeting popular, even to providing a fair in the grounds adjoining. The only British machine there appeared to be the Vickers "Vulcan," flown by Messrs. Cockerill and Broome, which was busy taking up joy-riders.

Traffic on the London-Brussels Route

TRAFFIC on the Instone Air Line's Brussels service is, in spite of the usual inexplicable fluctuations, on the whole good. On Saturday there were no fewer than 14 passengers from London to Brussels, which is to some extent surprising, as the bulk of this traffic is from Brussels to London.

The petrol competition on the aerodrome is still keen, and the latest move is the erection by the Anglo-American Oil Company of an office next door to the Shell Mex establishment.

Handley Page Transport are altering the times of their services as from today. The morning and afternoon services will be cancelled, and they will revert to their old original services, leaving both London and Paris at 12 noon.

The weather has continued to be composed of the strangest mixtures, and has hampered the services on several occasions. Quite a feature of the week has been the strong winds which have been blowing either dead against or right behind the machines on the Paris route. One day there would be a strong northerly wind, and the D.H.34's would be flying to Paris in well under the two hours, and taking nearly three to return, while the next day the position would be reversed, and rapid return journeys would be the rule. Morning mist and fogs over the hills, and in northern France, have made the early-morning newspaper services somewhat irregular.

Mr. Didier was back from his week-end in Paris early on Monday. He informs me that the Paris-Marseilles service of the C.M.A. is running regularly, and is such a success that there is talk of making it a regular daily service next year. The C.M.A. also intend to open a daily service between Paris and Cologne in the spring.

The strong winds over the week-end interfered to some extent with joy-riding, and the Surrey Flying Services did not take their usual hundreds of passengers up for short flights, although, in spite of the wind, there were a goodly number of hardy spirits who ventured into the air. There are, in fact, quite a lot of regular patrons who arrive at the aerodrome week after week and go up in the Surrey Flying Services' Avros.

A NEW FLYING SCHOOL

VISIONS of the happy, though strenuous, early days of flying arose when we received the announcement that a new flying school is about to be started. Known as Fraser's Flying School, this new venture is now ready to start operations at the Kingsbury aviation ground under the supervision of Mr. A. Fraser, who has been connected with aviation since the early days and has done a considerable amount of flying himself. He will be assisted by an efficient staff, one of whom, we understand, is Mr. Phillips, who has done quite a lot of flying recently in various parts of the country, on his own Avro.

It is proposed to use dual-control Avros for the initial training, after which advanced training will be carried out on the 80 h.p. Le Rhone Sopwith "Pup." In the near future other machines are to be added, such as the D.H., etc., the idea being to give pupils tuition on various types of machines, and not merely to pass them out just fit to fly on one particular type or make of machine.

Mr. Fraser also intends to add to the school stud an entirely new type of monoplane, the designs of which are now finished, and arrangements are being made for the first machine to be constructed.

The first twenty pupils to enrol in the Fraser Flying School will be entitled to a reduced fee of £75 for the course, but the regular fee is to be £100.

It is not, as yet, quite decided whether the School will remain permanently at Kingsbury, but in all probability Brooklands may be the future home, in which case this pioneer flying ground will assume somewhat an aspect reminiscent of the very early days of flying.

Judging by the enquiries we receive from time to time it would seem that there are still many who wish to learn flying, so that this new school should find ready support. Anyway, we wish Mr. Fraser every success in his new venture, and hope to report progress in this journal from time to time.

THE ROYAL AIR FORCE

London Gazette, September 12.

General Duties Branch

Pilot Offrs. to be Flying Offrs, June 21:—C. J. Collingwood, B. W. T. Hare.

The follg. are transferred to the Reserve:—

Class A.—Flying Offr. L. W. Allen, M.C.; Sept. 1. Flight Lieut. H. V. Worrall, D.S.C.; Sept. 12. Flying Offrs. F. J. H. Ayscough, M. W. Baseden, G. H. Bittles, G. L. Blake, R. A. C. Brie, I. G. G. Edgar, W. H. Howell, H. C. Peirce, G. W. C. Ravenhill, B. R. Rolfe, W. J. Sivewright; Sept. 12.

Class B.—Flight Lieut. C. G. Hetherington, M.B.E.; Sept. 12. Flying Offrs. A. E. W. Finch, A. J. Martin, A. F. Warner, H. A. L. Way; Sept. 12.

Class C.—Flying Offrs. S. C. Rose, H. J. de Waal, R. W. Warner, J. S. G. Wrathall; Sept. 12.

Flying Offr. H. M. T. Lehmann, M.C., resigns his short service commn., and is permitted to retain rank of Capt.; Sept. 12.

Flight Lieut. C. H. B. Jenner-Parson relinquishes his short service commn. on account of ill-health, and is permitted to retain rank of Capt.; Sept. 13.

Stores Branch

J. A. Coleman is granted a short service commn. as a Flying Offr., for accountant duties, with effect from, and with seny. of, Sept. 1.

Capt. F. Binns, M.B.E., R.A.P.C., is granted a temp. commn. for accountant duties as a Flight Lieut., with effect from Sept. 4, and with seny. of April 1, 1918, on seconding for three years' duty with R.A.F.

Flight Lieut. F. Binns, M.B.E., to be Acting Squadron Leader; Sept. 4.

The follg. are transferred to the Reserve, Cl. B; Sept. 12:—

Flight Lieut.—E. S. Baker.

Flying Offrs.—J. S. Card, H. F. J. Taylor.

Medical Service

J. F. Carruthers, M.D., is granted a temp. commn. as a Squadron Leader, with effect from, and with seny. of, July 31 (substituted for the notification in Gazette of Aug. 22).

Chaplains' Branch

The Rev. P. T. Hutchison is granted a short service commn. as a Chaplain, with the relative rank of Squadron Leader, for the purpose of precedence discipline, and administration; Sept. 2.

The Rev. J. R. Walkey, M.A., is granted the relative rank of Wing Commander for the purposes of precedence, discipline, and administration; Sept. 14.

Memorandum

The permission granted to Sec. Lieut. C. Oakley to retain his rank is withdrawn on his joining the Army.

London Gazette, September 15.

General Duties Branch.

The following are transferred to the Reserve (September 16):—

Class A.—Flying Officers.—J. L. N. Bennett-Baggs, W. E. Lunnon, W. A. Rochelle.

Class B.—Flight Lieut.—J. M. Burke.

Class C.—Flying Officers.—H. C. Atkin, H. Auliff, H. W. Prockter.

Stores Branch.

Wing Comdr. T. O. Lyons, O.B.E., is placed on half-pay, Scale A (September 9) (substituted for the notification in Gazette of September 8).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

Wing Commander.—J. N. Fletcher, A.F.C., from Air Ministry (D. of E.) to No. 1 Flying Training School (Inland Area). (Supernumerary.) 1.9.22.

Squadron Leaders.—J. A. G. de Courcy, M.C., from R.A.F. Base, Gosport (Coastal Area) to R.A.F. Depot (Inland Area). (Supernumerary.) 1.10.22. A. W. F. Glenny, M.C., D.F.C., from Headquarters, R.A.F. India (India) to command No. 28 Squadron. 1.8.22. E. Rivers-Smith, M.B.E., from R.A.F. Depot (Inland Area) to No. 1 Group Headquarters (Inland Area). 12.9.22.

Flight Lieuts.—G. C. Bailey, D.S.O., from School of Photography (Inland Area) to R.A.F. Depot (Inland Area). (Supernumerary.) 1.10.22. T. C. Thomson, from Central Flying School (Inland Area) to R.A.F. Depot (Inland Area). (Supernumerary.) 1.10.22. W. L. Fenwick, from No. 24 Squadron (Inland Area) to No. 1 Flying Training School (Inland Area) for duty as Adjutant. 5.9.22. A. L. Fiddament, from No. 20 Squadron (India) to Headquarters, R.A.F. India (India). 24.7.22. F. St. J. Woolard, A.F.C., from No. 4 Flying Training School (Middle East) to No. 216 Squadron (Middle East). 4.8.22. A. L. Lingard, from the Packing Depot to No. 1 Flying Training School (Inland Area). 11.9.22. H. H. Balfour, M.C., from

Headquarters (Inland Area) to Central Flying School (Inland Area). (Supernumerary.) 7.9.22. D. J. Jones, M.B., from Research Laboratory and Medical Officers' School of Instruction (Coastal Area) to No. 1 School of Technical Training (Boys) (Halton). 7.9.22. J. K. R. Landells, M.B., from Research Laboratory and Medical Officers' School of Instruction (Coastal Area) to R.A.F. Depot (Inland Area). (Supernumerary.) 4.9.22. J. A. Musgrave, from Research Laboratory and Medical Officers' School of Instruction (Coastal Area) to No. 1 School of Technical Training (Boys) (Halton). 4.9.22. R. A. Young, from Headquarters, No. 12 Wing (Ireland) to R.A.F. Depot (Inland Area). (Supernumerary.) 9.9.22. (Actg. Wing Comdr.) L. J. Lightfoot, O.B.E., from R.A.F. Depot (Inland Area) to Headquarters, R.A.F. (Iraq). (Supernumerary.) 1.9.22. (Actg. Sq. Ldr.) F. Binns, M.B.E., from Army (R.A.P.C.) to R.A.F. Depot (Inland Area). (Supernumerary.) 4.9.22. O. St Leger Campion, from R.A.F. Depot (Inland Area) to R.A.F. Central Hospital (Coastal Area). 18.9.22. C. P. Barber, from Instrument Design Establishment (Inland Area) to R.A.F. Depot (Inland Area). (Supernumerary.) 8.9.22. W. J. King, D.C.M., from No. 1 Stores Depot to Headquarters, R.A.F. (India). 6.4.22. Substituted for the notification concerning this Officer which appeared in R.A.F. Intelligence Bulletin dated 26.4.22.

R.A.F. TAKING OVER IRAK

In accordance with the policy announced approximately a year ago, the Royal Air Force will take over on October 1 the responsibility for the maintenance of peace in Mesopotamia, or, as it is now called, Irak. The announcement of this policy followed the return of Mr. Winston Churchill and Air Marshal Sir Hugh Trenchard from a visit to the East: and Air Vice-Marshal Sir John Salmond, on his return from his tour of inspection in India, will be in command of the R.A.F. Irak.

Officers and men to the number of approximately 1,100 left Southampton on board the *Braemar Castle* on September 14, bound for Mesopotamia, and it is of interest to note that this was the first occasion on which the R.A.F. has chartered a ship exclusively for its own drafts. The officer commanding the troops was Group-Capt. the Hon. J. D. Boyle, with Wing-Commander W. H. Primrose in command of the armoured-car section. The officers and men were drawn from Manston (458) and Uxbridge (542) training centres, and in addition to the officers and other ranks the ship's complement included two matrons, R.A.F. Nursing Service, four sisters and four Staff nurses. Flight-Lieut.

A. H. Wann, who, it will be remembered, was in command of "R.38," is making the journey as ship's adjutant.

The total personnel of the R.A.F. in Irak will number about 3,000, and four armoured-car companies, a signal section, an armoured-train section and a water transport section will be included in the establishment. Eight squadrons of the R.A.F. will be stationed in Irak, some at Hinadi, some at Mosul and some at Shilah. The squadrons, their equipment and their stations will be as follows:—

At Hinadi, No. 1 (Sopwith "Snipes"—200 h.p. B.R.); No. 6 (Bristol fighters—275 h.p. Rolls-Royce); Nos. 8 and 20 (D.H. 9A's—375 h.p. Rolls-Royce); Nos. 45 and 70 (Vickers troop-carriers—two 375 h.p. Rolls-Royce). At Mosul, No. 55 (D.H. 9A—375 h.p. Rolls-Royce); and at Shilah, No. 84 (D.H. 9A). Each Squadron consists of 12 machines and reserves.

Of the machines none call for comment except, perhaps, the Vickers troop-carriers. These are practically developments of the famous Vickers Vimy commercial machine, and two types are in existence, the Vernon fitted with Rolls-Royce engines and the Victoria with Napier "Lions." It is not, however, permissible to publish details.

28th Squadron Dinner

THE 3rd Annual Reunion Dinner will be held under the auspices of the 28th Squadron Old Boys' Association on Saturday, October 7, at Anderton's Hotel, Fleet Street, E.C. 2. Assemble at 5.30 p.m.; dinner at 6 p.m. prompt.

Tickets are now available at 8s. 6d., and can be obtained from the Hon. Secretary, Mr. C. T. Hodges, 102, Camden Street, N.W. 1.

Marriage Allowance and Allotments of Pay

THE Royal Air Force is introducing a new method for the payment of marriage allowances and allotments of pay. From October 5 the present system of issuing books of

allowance-forms will be discontinued, and postal drafts will be issued instead direct from the Air Ministry to the payee, who will obtain payment fortnightly in advance at the post office named on the draft.

Identity certificates (ring papers) will no longer be used when the new method comes into operation, but payees will require to notify the Air Ministry of all changes in address.

The R.A.F. Club Cricket Week

THE following changes are to be noted: Hon. F. S. G. Calthorpe is unable to play for the North, and Miles Howell is unable to play for the Rest of England. Rhodes (Yorks) will play for the North and the Rest in place of these two.

SOCIETY OF MODEL AERONAUTICAL ENGINEERS (London Aero-Models Association.)

At the last meeting Mr. W. E. Evans presented the Society with a Cup to be known as the "Model Glider Record Cup," and a hearty vote of thanks was passed to Mr. Evans for his kindness. It was decided that members should congregate on Parliament Hill on Sunday next, the 24th, at 11 o'clock for 11.30, when an effort will be made to improve the present record for model gliders.

On Saturday last members attended at Wimbledon Common to compete for the "Kelly" Challenge Cup. Unfortunately, the weather was so boisterous that the event had to be postponed till Saturday next, the 23rd inst., at 4.30 p.m.

Meetings of the Society will be held on Friday evenings at 7.30 at Headquarters, 20, Great Windmill Street, Piccadilly Circus, W. 1, instead of on Thursdays as heretofore. Anyone interested in model aeronautics will be welcomed. Hon. Secretary, A. E. Jones, 48, Narcissus Road, West Hampstead, N.W. 6.

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International Air-Law Proposals

IN Buenos Aires delegates to the International Law Association have last month been thrashing out matters relating to crime under international laws. The possibility of illegalities occurring *via* the air was naturally one of the subjects of which cognisance was taken, and at the discussion upon this section it was agreed that the radius of operation of military aircraft ought to be restricted, and it was decided to appoint a committee to formulate regulations.

The following regulations, recommended by the Aviation Law Committee as providing a uniform international code of law, civil and criminal, for persons carried on aircraft—a question not dealt with in the International Convention for the Regulation of Aerial Navigation, 1919—and amended in certain respects during the discussion, were agreed to:—

(a) *Civil Jurisdiction* (Art. 1).—The airship which is above the open sea or such territory as is not under the sovereignty of any State is subject to the laws and to the jurisdiction of the country of which it has the nationality. (Art. 2).—Passenger aircraft over foreign territory remain subject to the exclusive jurisdiction of the State of origin. Private aircraft over foreign territory are subject to the laws and jurisdiction of such territory only in case of violation of its public safety laws and military and fiscal laws, and violation of its laws governing air navigation and acts committed on aircraft affecting such territory. In all other respects private aircraft are amenable to the laws and jurisdiction of their own flag.

(b) *Criminal Jurisdiction* (Art. 3).—If during a flight of an aircraft over any State or States or their territorial waters without landing, any person on board such aircraft commit any crime, the person charged shall be arrested, in the air if necessary. The accused shall be tried and punished in accordance with Article 2. The State in which the aircraft alights is obliged to detain the accused if necessary and deliver him to the State of jurisdiction. (Art. 4).—Acts committed on board a private aircraft not in flight in a foreign State shall be subject to the jurisdiction of such State, and any person or persons charged with the commission of such acts shall be tried and, if found guilty, punished according to the laws of such State.

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PERSONALS

Married

At All Saints', Warlingham, EDMUND GEORGE POLE, late R.A.F., only son of Mr. and Mrs. George Pole, of "Westfield," Caterham, Surrey, to KATHLEEN, only daughter of Mr. and Mrs. ALFRED MEREDITH, of Caerwys, Warlingham, Surrey.

To be Married

The marriage arranged between Flying Officer RICHARD GRICE, D.F.C., and Miss SHEILA LANGDON will take place at Port Said on Thursday, Oct. 5.

Birth

Mrs. L'ESTRANGE MALONE, wife of Mr. L'Estrange Malone, M.P., gave birth to a daughter last week at 36, Buckingham Gate, S.W. 1.

Item

Major NOBILE CARLO M. GRAZIANI, Air Attaché to the Italian Embassy, has arrived in London from Geneva, where he has been engaged in the Air Conference.

IMPORTS AND EXPORTS, 1921-1922

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910). For 1910 and 1911 figures see "FLIGHT" for January 25, 1912; for 1912 and 1913, see "FLIGHT" for January 17, 1914; for 1914, see "FLIGHT" for January 15, 1915; for 1915, see "FLIGHT" for January 13, 1916; for 1916, see "FLIGHT" for January 11, 1917; for 1917, see "FLIGHT" for January 24, 1918; for 1918, see "FLIGHT" for January 16, 1919; for 1919, see "FLIGHT" for January 22, 1920; for 1920, see "FLIGHT" for January 13, 1921; and for 1921, see "FLIGHT" for January 19, 1922.

	Imports		Exports		Re-Exportation	
	1921.	1922.	1921.	1922.	1921.	1922.
Jan. ...	4,459	1,152	87,128	76,552	2,285	23
Feb. ...	2,379	567	59,829	69,129	19	1,100
Mar. ...	14	1,471	118,199	166,607	1,565	100
April...	1,370	3,846	138,983	139,995	450	5,880
May ...	3,350	2,416	59,624	167,999	1,818	4,254
June ...	5,181	816	79,713	129,137	—	14,530
July ...	540	1,039	530,628	24,405	860	—
August	343	198	111,595	88,910	—	685
	17,636	11,505	1,185,699	862,734	6,997	26,572

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PUBLICATIONS RECEIVED

H. G. Hawker, *Airman: His Life and Work*. By Muriel Hawker. Hutchinson and Co., Ltd. 18s.

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AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1921

Published September 21, 1922

- 5,896. RAOUL, MARQUIS OF PATERAS PESCARA. Steering-devices for helicopters. (159,223.)
13,847. SIR A. T. DAWSON and SIR G. T. BUCKHAM. Sighting-apparatus for anti-aircraft ordnance. (184,855.)
14,193. A. E. BREWERTON. Direction and distance recorder. (184,882.)
14,811. DAIMLER-MOTOREN Ges. Radiators. (164,692.)

APPLIED FOR IN 1922

Published September 21, 1922

- 6,946. L. E. BRESSON. Rotary explosion motor.

If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages iii and xiv).

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